CLAIMS

What is claimed is:

1. A method of efficiently transmitting media information associated with two or more concurrent calls carried in a packet-switched network, the method comprising the computer-implemented steps of:

aggregating two or more media packets from the two or more concurrent calls originating from one or more source end points into an aggregated media payload;

re-packetizing the aggregated media payload using a single aggregated header to form an aggregated media packet;

forwarding the aggregated media packet to a next hop in the packet-switched network.

2. The method of Claim 1, further comprising de-aggregating the aggregated media payload for one or more destination endpoints by separating the aggregated media payload to result in creating and sending restored copies of the two or more media packets, wherein each media packet corresponds to one of the two or more concurrent calls.

3. The method of Claim 1, wherein aggregating the two or more media packets comprises compressing one or more headers of each media packet.

4. The method of Claim 1, wherein the two or more media packets are Real-Time Protocol (RTP) packets.

5. The method of Claim 4, wherein the step of aggregating two or more media packets further comprises the steps of:

compressing an IP header and a UDP header of each RTP packet to form a corresponding uncompressed RTP segment; and

encapsulating the two or more uncompressed RTP segments with the single aggregated header.

6. The method of Claim 4, wherein the step of aggregating two or more media packets further comprises the steps of:

compressing an IP header, a UDP header, and an RTP header of each RTP packet to form a corresponding compressed RTP segment; and

encapsulating the two or more compressed RTP segments with the single aggregated header.

7. The method of Claim 1, wherein the step of aggregating the two or more media packets further comprises forming the aggregated media payload according to an aggregation protocol that has a reduced sensitivity to media packet loss for aggregating the two or more media packets.

8. The method of Claim 7, wherein the aggregation protocol comprises forming the aggregated media payload based on an aggregated media packet format for each aggregated media packet wherein the aggregated media packet format comprises a version field indicating a version of the aggregation protocol.

9. The method of Claim 7, wherein the aggregation protocol comprises forming the aggregated media payload based on an aggregated media packet format for each aggregated media packet wherein the aggregated media packet format comprises a placeholder field that reserves packet space for future use.

10. The method of Claim 7, wherein the aggregation protocol comprises forming the aggregated media payload based on an aggregated media packet format for each aggregated media packet wherein the aggregated media packet format comprises a sequence number field that is incremented for each aggregated media packet and is used to detect media packet loss.

11. The method of Claim 7, wherein the aggregation protocol comprises forming the aggregated media payload based on an aggregated media packet format for each aggregated media packet wherein the aggregated media packet format comprises a trunk ID field that uniquely identifies a corresponding trunk.

12. The method of Claim 7, wherein the aggregation protocol further comprises forming the aggregated media payload based on an uncompressed Real-Time Protocol segment format for each uncompressed Real-Time Protocol segment of the two or more media packets that comprises a context ID field indicating a session context ID for the uncompressed Real-Time Protocol segment.

13. The method of Claim 7, wherein the aggregation protocol further comprises forming the aggregated media payload based on an uncompressed Real-Time Protocol segment format for each uncompressed Real-Time Protocol segment of the two or more media packets that comprises a compression bit indicating whether the uncompressed Real-Time Protocol segment is uncompressed.

14. The method of Claim 7, wherein the aggregation protocol further comprises forming the aggregated media payload based on an uncompressed Real-Time Protocol segment format for each uncompressed Real-Time Protocol segment of the two or more media packets that comprises a placeholder field for future use.

15. The method of Claim 7, wherein the aggregation protocol further comprises forming the aggregated media payload based on an uncompressed Real-Time Protocol segment format for each uncompressed Real-Time Protocol segment of the two or more media packets that comprises a Real-Time Protocol header extension bit indicating whether a Real-Time Protocol header extension appears in the uncompressed Real-Time Protocol segment.

16. The method of Claim 7, wherein the aggregation protocol further comprises forming the aggregated media payload based on an uncompressed Real-Time Protocol segment format for each uncompressed Real-Time Protocol segment of the two or more media packets that includes a full length field containing a length of a Real-

Time Protocol packet that corresponds to the uncompressed Real-Time Protocol segment.

17. The method of Claim 7, wherein the aggregation protocol further comprises forming the aggregated media payload based on an uncompressed Real-Time Protocol segment format for each uncompressed Real-Time Protocol segment of the two or more media packets that comprises a Real-Time Protocol payload and a Real-Time Protocol header corresponding to a Real-Time Protocol packet that in turn corresponds to the uncompressed Real-Time Protocol segment.

18. The method of Claim 7, wherein the aggregation protocol further comprises forming the aggregated media payload based on an uncompressed Real-Time Protocol segment format for each uncompressed Real-Time Protocol segment of the two or more media packets that comprises a padding field that aligns an end of the uncompressed Real-Time Protocol segment with a next four-byte boundary.

19. The method of Claim 7, wherein the aggregation protocol further comprises forming the aggregated media payload based on a compressed Real-Time Protocol segment format for each compressed Real-Time Protocol segment of the two or more media packets that comprises a context ID field indicating a session context ID for the compressed Real-Time Protocol segment.

20. The method of Claim 7, wherein the aggregation protocol further comprises forming the aggregated media payload based on a compressed Real-Time Protocol segment format for each compressed Real-Time Protocol segment of the two or more media packets that comprises a compression bit indicating whether the Real-Time Protocol segment is compressed.

21. The method of Claim 7, wherein the aggregation protocol further comprises forming the aggregated media payload based on a compressed Real-Time Protocol segment format for each compressed Real-Time Protocol segment of the two or more media packets that comprises a Real-Time Protocol header extension bit indicating whether a Real-Time Protocol header extension appears in the compressed Real-Time Protocol segment.

22. The method of Claim 7, wherein the aggregation protocol further comprises forming the aggregated media payload based on a compressed Real-Time Protocol segment format for each compressed Real-Time Protocol segment of the two or more media packets that comprises a Real-Time Protocol header marker bit.

23. The method of Claim 7, wherein the aggregation protocol further comprises forming the aggregated media payload based on a compressed Real-Time Protocol segment format for each compressed Real-Time Protocol segment of the two or more media packets that comprises a length field containing a length of a Real-Time Protocol

payload of a Real-Time Protocol packet of the compressed Real-Time Protocol segment.

24. The method of Claim 7, wherein the aggregation protocol further comprises forming the aggregated media payload based on a compressed Real-Time Protocol segment format for each compressed Real-Time Protocol segment of the two or more media packets that comprises a sequence number field carrying a Real-Time Protocol header sequence number.

25. The method of Claim 7, wherein the aggregation protocol further comprises forming the aggregated media payload based on a compressed Real-Time Protocol segment format for each compressed Real-Time Protocol segment wherein the compressed Real-Time Protocol segment format comprises a timestamp field carrying a Real-Time Protocol header timestamp.

26. The method of Claim 7, wherein the aggregation protocol further comprises forming the aggregated media payload based on a compressed Real-Time Protocol segment format for each compressed Real-Time Protocol segment of the two or more media packets that comprises a Real-Time Protocol payload of a Real-Time Protocol packet that corresponds to the compressed Real-Time Protocol segment.

27. The method of Claim 7, wherein the aggregation protocol further comprises forming the aggregated media payload based on a compressed Real-Time Protocol segment format for each compressed Real-Time Protocol segment of the two or more media

packets that comprises a padding field that aligns an end of the compressed Real-Time Protocol segment with a next boundary.

28. The method of Claim 1, wherein the two or more media packets are received while traversing a common sub-route.

29. The method of Claim 1, further comprising the step of transmitting the aggregated media packet when the aggregated media packet contains a sufficient number of Real-time Protocol segments.

30. The method of Claim 29, wherein the sufficient number of Real-time Protocol segments is a user-selected number.

31. The method of Claim 1, further comprising transmitting the aggregated media packet when a maximum allowed delay time value is reached.

32. The method of Claim 1, further comprising:

using a maximum allowed delay time value for transmitting the aggregated media packet;

starting a count down for the maximum allowed delay time value when a first media packet arrives for aggregation; and

aggregating subsequent media packets that arrive before the maximum allowed delay time value is reached.

33. An apparatus for transmitting media information associated with two or more concurrent calls carried in a packet-switched network, the apparatus comprising:

means for aggregating two or more media packets from one or more source endpoints into an aggregated media payload;

means for re-packetizing the aggregated media payload using a single aggregated header to form an aggregated media packet.

34. An apparatus for transmitting media information associated with two or more concurrent calls carried in a packet-switched network, the apparatus comprising:

one or more processors coupled to an aggregator for aggregating two or more media packets into an aggregated media packet;

a memory accessible to the one or more processors; and

one or more sequences of instructions stored in the memory which, when executed by the one or more processors, cause the one or more processors to carry out the steps of:

aggregating two or more media packets from one or more source endpoints into an aggregated media payload; and

re-packetizing the aggregated media payload using a single aggregated header to form the aggregated media packet.

35. A computer-readable medium comprising one or more sequences of instructions for efficiently transmitting media information associated with two or more concurrent calls carried in a packet-switched network, which the sequences of instructions, when

executed by one or more processors, cause the one or more processors to carry out the steps of:

aggregating two or more media packets from the two or more concurrent calls originating from one or more source end points into an aggregated media payload;

re-packetizing the aggregated media payload using a single aggregated header to form an aggregated media packet;

forwarding the aggregated media packet to a next hop in the packet-switched network.